

**REMARKS**

Reconsideration and allowance of this application, as amended, are respectfully requested. Claim 25 has been amended. Claims 25, 26, and 28-34 remain pending in the application. The rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein.

In the Amendment, claim 25 has been amended to recite in pertinent part that “said metal layer has a stiffness sufficient to enable simultaneous dicing of said semiconductor device edges, said dielectric substrate edges, and said metal layer edges, so as to provide said package with aligned edges.” Support for claim 25 is found throughout Applicants’ application, but is found initially at specification page 3, lines 24-27 (“According to another aspect of the invention, a metal sheet may be included in the layered assembly before the testing and dicing steps. The metal sheet forms stiff metal layers in each of the finished packages. The metal layers may be used as heat spreaders and/or as electrical ground planes.”). Support is also found, for example, at specification page 7, line 30, through page 8, line 9 (“The metal layer 62 may be used to stiffen the package 60,” page 8, lines 2-3), and at page 9, lines 18-26, specifically, lines 22-26:

In addition, *the metal layer 90 may provide stiffness* for the package 94. The metal layer 90 is preferably attached to the semiconductor device 12 before the device 12 is singulated from the wafer 50. This way, *the metal layer 90 provides stiffness* to the wafer-tape assembly prior to and *during the dicing operation*. The dicing operation causes the edges 96 of the metal layer 90 to be *aligned* with the edges 24, 86 of the semiconductor device 12 and the substrate 72 (emphasis added).

Entry of the amendment is respectfully requested.

35 U.S.C. § 102(e) - Heo

Claims 25, 26, and 28-34 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,389,689 to Heo.

The rejection is respectfully traversed. For at least the following reasons, the disclosure of Heo does not anticipate Applicants' claimed invention.

First, as indicated above, claim 25 has been amended to recite in pertinent part that "said metal layer has a stiffness sufficient to enable simultaneous dicing of said semiconductor device edges, said dielectric substrate edges, and said metal layer edges, so as to provide said package with aligned edges."

Applicants' claimed semiconductor device package is different from the structure disclosed by Heo. By virtue of the metal layer's stiffness, Applicants' claimed package has semiconductor device edges, dielectric substrate edges, and metal layer edges that are *aligned* with one another because they are simultaneously diced. The edges can be simultaneously diced because the metal layer stiffens the package.

Heo fails to disclose or suggest Applicants' claimed *stiff* metal layer. Heo discloses simply a "[c]opper sheet 21 [that] is formed of copper which easily emits heat" (column 3, lines 45-46). Heo, therefore, suffers from the drawbacks of a package without sufficient stiffness (see Applicants' specification page 2, lines 23-30, specifically, lines 27-28: "There are

numerous disadvantages associated with the Heo method. Among them is that the packages do not have sufficient stiffness.”).

Heo thus also fails to disclose or suggest Applicants’ claimed package with *aligned* edges. Heo dices a semi-conductor wafer into chips, then attaches the chips to a circuit board sheet, and then dices the circuit board sheet into semiconductor device packages (col. 4, lines 16-20 and 41-43), resulting in imperfect alignment between the edges of the semiconductor chip and the circuit board elements.

Claims 26 and 28-34 depend from claim 25, and should be allowable along with claim 25, and for other reasons.

For at least the above reasons, reconsideration and withdrawal of the rejection under § 102(e) are respectfully requested.

For all of the reasons identified above with respect to the rejection under § 102(e), the rejection of claim 26 under § 103(a) is similarly respectfully traversed. Marcantonio fails to rectify the above-identified deficiencies associated with Heo. Thus, the asserted combination of disclosures would not have rendered obvious the embodiments of the invention defined by claim 26.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully

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requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

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